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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,362	09/28/2006	Klaus Endres	P30186	8426

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EXAMINER	
LI, AIQUN	
ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
07/08/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/587,362	ENDRES ET AL.	
	Examiner	Art Unit	
	AIQUN LI	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *11-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 11-30 are pending as amended on 04 June 2009.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Applicant's amendments to the claims and remarks/arguments, all filed 04 June 2009, have been entered and fully considered.

Response to Amendment and Arguments

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

5. Applicant's arguments have been fully considered but they are not persuasive.

Applicant argues that the claimed consolidation agent is particle-free, and US Patent 6287639 (Schmidt 639) and US Patent 6378599 (Schmidt599) disclose exclusively compositions which comprise (colloidal) particles as essential components thereof.

Both Schmidt639 and Schmidt 599 expressly teaches one or more silanes for surface modification (Schmidt 639, col.1, line 5-24; Schmidt599, col.1, line 5-20). As a result of the surface modification, it is the composite contains nanoparticles not the silanes. Schmidt639 and Schmidt599 further teaches examples of silanes such as phenyltriethoxysilane and tetraetoxysilane (Schmidt639, col.5, line 50-55 and

Schmidt599, col.4, line 25-30), both are liquid as evidenced in MSDS data sheet of Sigma-Aldrich. Therefore, both Schmidt639 and Schmidt 599 anticipate the limitation of "particle-free" of the amended claim.

Applicants further argues that US Patent 6513592 (Espin) fails to teach or teaches away from employing particle-free consolidation agent.

Espin expressly teaches the nanoparticles comprising an inorganic component having an affinity for the sand grains and an organic component which allows polymerization bonding of the inorganic component to contacting the unconsolidated formation (col.3, line 5-20 and claim 1). Espin further teaches the organic components include silanes, hydroxyls and/or alkoids (col.3, line 15-17), and the nanoparticles include those disclosed in PCT/EP97/06370, of which Schimidt639 is the English equivalent. Therefore Espin teaches both the nanoparticles and the silanes, where the silanes are the bonding agents and/or surface modifying agents, which are particle – free.

Claim Rejections - 35 USC § 102

6. Claims 11-27 are rejected 35 U.S.C. 102(b) as being anticipated by US Patent 6287639 B1 (Schmidt 639), as evidenced in the MSDS data sheet of Sigma-Aldrich.

Regarding to claim 11, Schmidt 639 teaches a silane composition for molded articles (Examples 3, 6, 7, 12) and consolidating (col. 5, line 33) substrate, comprising

at least one of porous materials such as sand and clay (col. 2, line 11-13), wherein the silane comprises at least one of a hydrolysate (col. 3, line 59-60) and a precondensate (col. 3, line 56-59) of (a) one or more silanes of formula(I) R_xSiA_{4-x} (col. 1, line 9-18), wherein the radicals R independently represent non-hydrolysable groups (col. 1, line 13-15), the radicals A independently represent hydrolysable groups or hydroxyl groups (col. 1, line 12-14), x is 0,1,2 or 3, and $x \geq 1$ in at least 50 mol % of the silane. Schmidt639 further teaches examples of silanes such as phenyltriethoxysilane and tetraethoxysilane (col.5, line 50-55), both are liquid as evidenced in MSDS data sheet of Sigma-Aldrich.

Regarding claim 12, Schmidt 639 teaches radicals X comprise one or more radicals selected from halogen (col. 2, line 35), alkoxy (col. 2, line 36) and acyloxy (col. 2, line 39) groups.

Regarding claim 13, Schmidt 639 teaches the radicals X comprises one or more radicals selected from C_{2-4} alkoxy groups (col. 2, line 36).

Regarding claim 14, Schmidt 639 teaches the radicals R comprise one or more radicals selected from C_{1-4} alkyl groups (col. 2, line 59) and aryl groups (col. 2, line 62).

Regarding claim 15, Schmidt 639 teaches the radicals R comprise one or more radicals selected from methyl and ethyl (col. 2, line 59).

Regarding claim 16, Schmidt 639 teaches the radicals R comprise a phenyl group (col. 2, line 63).

Regarding claim 17 and 18, Schmidt 639 teaches the silanes comprises one or more of methyltriethoxysilane, phenyltriethoxysilane, and tetraethoxysilane (col.3, line 30, and Example 1), which reads on the claimed components.

Regarding claim 19, Schmidt 639 teaches at least one of the hydrolysate and a precondensate (col. 3, line 56-60) has been prepared in the presence of additives (col. 2, line 23-24, and claim 6) such as metal alkoxides (col. 4, line 19-20 and claim 7, "curing catalyst"), selected from aluminium alkoxides, titanium alkoxides or zirconium alkoxides (col. 4, line 21-22), which reads on the claimed formula and group.

Regarding claim 20, Schmidt 639 teaches the metal compounds comprise aluminium alkoxides, titanium alkoxides or zirconium alkoxides (col. 4, line 21-22), which reads on the claimed group.

Regarding claim 21, Schmidt 639 teaches the metal compounds comprise aluminium alkoxides, titanium alkoxides or zirconium alkoxides (col. 4, line 21-22), which reads on the claimed group.

Regarding claim 22, Schmidt 639 teaches the metal compounds comprise aluminium alkoxides, titanium alkoxides, zirconium alkoxides (col. 4, line 21-22), or sodium methoxide or potassium acetate (col. 4, line 26) which reads on the claimed group.

Regarding claim 23, Schmidt 639 teaches the silane has been prepared under a sol-gel process (col. 2, line 24-25) using a substoichiometric amount of water relative to hydrolysable radicals (claim1(1)).

Regarding claim 24, Schmidt 639 teaches a solution which comprises the silanes (col. 1, line 21 and col. 4, line 32 "a viscous sol").

Regarding claim 25, Schmidt 639 teaches a process for preparing a consolidated molded article (col. 5, line 37, and Examples 3, 6, 7, 12) comprises mixing an inorganic compound (col. 4, line 65, col. 2, line 11-13, "sands and clays" and Example 12) with the silane (col. 4, line 65-66) and thereafter curing the silane composition (Examples 1-4), which reads on the claim.

Regarding claim 26, Schmidt 639 teaches prior to being combined with the material the silane is activated by adding water (col. 4, line 61-62).

Regarding claim 27, Schmidt 639 teaches a consolidated molded article obtainable by the claimed process (Example 3, 7, and 12).

7. Claims 11, 17 and 18 are rejected 35 U.S.C. 102(b) as being anticipated by US Patent 6378599 B1(Schmidt 599), as evidenced in the MSDS data sheet of Sigma-Aldrich.

Regarding claim 11, Schmidt 599 teaches a silane composition (col.1, line 4, "binder") for molded articles (col. 3, line 56) and consolidating sands (Examples 1,2) and inorganic particles (col.3, line 11), wherein the silane composition comprises at least one of a hydrolysate (col.2, line 59-60) and a precondensate (col.2, line 56-60) of (a) one or more silanes of formula(I) R_xSiA_{4-x} (col. 1, line 8-10), wherein the radicals R independently represent non-hydrolysable groups (col.1, line 13-15), the radicals A independently represent hydrolysable groups or hydroxyl groups (col.1 , line 11-13) , x

is 0,1,2 or 3, and x≥ 1 in at least 50 mol % of the silane. Schmidt599 further teaches examples of silanes such as phenyltriethoxysilane and tetraethoxysilane (col.4, line 25-30), both are liquid as evidenced in MSDS data sheet of Sigma-Aldrich. which reads on the claim.

Regarding claim 17, Schmidt 599 teaches the silane comprises methyltriethoxysilane, phenyltriethoxysilane and tetraethoxysilane (Example 1), which reads on the claimed components.

Regarding claim 18, Schmidt 599 teaches the silane comprises methyltriethoxysilane, phenyltriethoxysilane and tetraethoxysilane (Example 1).

Claim Rejections - 35 USC § 103

8. Claims 28, 29, 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6513592 B2 (Espin) in view of Schmidt 639 as evidenced in the MSDS data sheet of Sigma-Aldrich.

Regarding claim 28, Espin teaches a process for consolidating sand formations (Espin, claim1) comprises injecting a consolidation system into the formation (Espin, col.2, line 47-48, and claim 1) and curing thereof (Espin , col. 3, line 30). Espin further teaches the consolidation system is a fluid suspension of nanoparticles as disclosed in PCT/EP97/06370 (Espin, col. 3, line 18-19), of which Schmidt 639 is the English

equivalent, which teaches the agent as claimed in claim 11 (see paragraph 6 of this Action).

At the time of the invention it would have been obvious for a person of ordinary skill in the art to inject the agent of Schmidt 639 into the formation and curing thereof for the benefit of consolidating sand formations, because Espin expressly teaches the use of the particles of PCT/EP97/06370 (Espin, col. 3, line 18-19), of which Schmidt 639 is the English equivalent. While teaching a particle modified by silanes, the silanes of Schmidit639 itself is particle-free (as detailed above) and function as a surface modifying and bonding agent Espin, col.3, line 13-16) .

Regarding claim 29, Espin teaches the formation is a sand formation bearing hydrocarbon (Espin, col. 2, line 22-23), which reads on the claim.

Regarding claim 30, Espin teaches the process for consolidating a sand formation comprise introducing nanoparticles comprising an inorganic component and silanes (Espin, col.3, line 8, 16) into channels (Espin, col. 3, line 39-42, "between grains" and "capillary forces", and Fig 2), which reads on the claim.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AIQUN LI whose telephone number is (571)270-7736. The examiner can normally be reached on Monday -Thursday, 9:30 am - 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on (571)2721498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AL/

/Timothy J. Kugel/
Primary Examiner, Art Unit 1796